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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/283,169	04/01/1999	JORG LAWRENZ-STOLZ	COHD-3252	9585

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EXAMINER

SANGHAVI, HEMANG

ART UNIT PAPER NUMBER

2874

DATE MAILED: 08/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/283,169

Applicant(s)

LAWRENZ-STOLZ, JORG

Examiner

Hemang Sanghavi

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 22-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 08/047,421.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on May 05, 2003 has been entered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 22-24 and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over d' Auria et al (US 4,147,403; hereinafter Auria et al) and Hall et al (US 5,343,548).

Auria et al discloses an apparatus for coupling laser radiation from an array of laser diodes into a plurality of optical fibers corresponding in number to the number of laser diodes in the laser diode array, the apparatus further comprises an optical fiber lens as a cylindrical lens having the length of the linear laser diode array. The lens and

the light entrance side of the optical fibers are aligned with the laser diodes for receiving radiation emitted therefrom and focusing the received radiation into the plurality of optical fibers. See Fig. 5 and lines 32-54 of column 4. The optical fibers are supported on an optical fiber holder and it is inherent that there is a gap between the laser diode array and the fiber holder, since the lens extends beyond the edge of the fiber holder.

Auria et al, as discussed above, fails to disclose a carrier element for supporting the laser diode assembly and the optical fiber holder.

Hall et al discloses an apparatus for aligning a laser diode array assembly with an array of optical fibers comprising a common carrier element holding a semiconductor laser diode array structure and a holder for holding a plurality of optical fibers also mounted on the common carrier element. See Fig. 1 and lines 52-62 of column 3. Such mounting of the laser assembly and the optical fiber holder provides capability to efficiently align the lasers with the optical fibers.

Also, note Auria et al teaches that the laser diode should be arranged upon a substrate of adequate thickness to ensure that the emissive junction is located in the same plane as the optical fiber (lines 65-68 of column 3 through lines 1-4 of column 4).

From collective teachings of Hall et al and desirability in Auria et al, the ordinary artisan would have found it to be obvious at the time of the invention to provide a common carrier element for supporting the laser diode assembly and the optical fiber holder in the apparatus for Auria et al, for the purpose of advantageously efficiently aligning and maintaining the alignment of the laser diode with the optical fibers.

As to claims 24, the use of a Peltier element is well known in the art to temperature control the device and avoids excessive heat.

From available well known techniques, the ordinary artisan would have found it to be obvious at the time of the invention to provide a well known Peltier element for the carrier of modified device of Auria et al for the purpose of increasing the life of the device.

As to claim 27, in Fig. 3, Auria et al teaches that the diameter of the cylindrical fiber lens is chosen to be less than the diameter of the optical fiber to be coupled without loss in coupling efficiency.

Claims 25 and 28-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over d' Auria et al (US 4,147,403; hereinafter Auria et al) and Hall et al (US 5,343,548), and Dakss et al (US 4,269,648).

Auria et al, as discussed above, fails to disclose a carrier element for supporting the laser diode assembly and the optical fiber holder.

Hall et al discloses an apparatus for aligning a laser diode array assembly with an array of optical fibers comprising a common carrier element holding a semiconductor laser diode array structure and a holder for holding a plurality of optical fibers also mounted on the common carrier element. See Fig. 1 and lines 52-62 of column 3. Such mounting of the laser assembly and the optical fiber holder provides capability to efficiently align the lasers with the optical fibers.

Also, note Auria et al teaches that the laser diode should be arranged upon a substrate of adequate thickness to ensure that the emissive junction is located in the same plane as the optical fiber (lines 65-68 of column 3 through lines 1-4 of column 4).

From collective teachings of Hall et al and desirability in Auria et al, the ordinary artisan would have found it to be obvious at the time of the invention to provide a common carrier element for supporting the laser diode assembly and the optical fiber holder in the apparatus for Auria et al, for the purpose of advantageously efficiently aligning and maintaining the alignment of the laser diode with the optical fibers.

Auria et al further fails to disclose the attaching of the cylindrical fiber lens to each of the optical fibers and method step of gluing the cylindrical lens onto the linear array of light entrance sides of the optical fibers.

However, Auria et al teaches that the lens must be carefully aligned with respect to the optical fibers and it is accomplished by gluing lens on to a substrate on which the optical fibers are disposed. It should be noted that the optical fibers about the cylindrical lens in a manner to center the lens on the light entrance ends to facilitate alignment.

Dakss et al, in a related art, discloses a method for mounting lens on an end of an optical fiber comprising the steps of attaching lens directly to an end of the optical fiber using a bead of glue in a manner to self center and align the lens with a laser source. The technique used in Dakss et al provides an efficient and easy of attaching the lens to the end of the fiber which does not require extensive aligning steps of adjusting the lens and the fiber to achieve maximum coupling of light. See column 1 for

the drawback of the prior art techniques for attaching the lens to the end of the fiber and lines 55-66 of column 3 for the advantages of the disclosed technique in Dakss et al.

Thus, from desirability in the apparatus of Auria et al and collective teachings of Dakss et al, the ordinary artisan would have found it to be obvious at the time of the invention to attach of the cylindrical fiber lens to each of the optical fibers and method step of gluing the cylindrical lens onto the linear array of light entrance sides of the optical fibers for the purpose of advantageously properly collimating laser radiation from the laser diode array and avoiding the problem of miss-alignment.

As to claims 30, the use of a Peltier element is well known in the art to temperature control the device and avoids excessive heat.

From available well known techniques, the ordinary artisan would have found it to be obvious at the time of the invention to provide a well known Peltier element for the carrier of modified device of Auria et al for the purpose of increasing the life of the device.

As to claim 33, in Fig. 3, Auria et al teaches that the diameter of the cylindrical fiber lens is chosen to be less than the diameter of the optical fiber to be coupled without loss in coupling efficiency.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Albares discloses a laser diode assembly and an optical fiber holder mounted on a common carrier element.

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Since Auria et al and Dakss et al used in the above rejections were submitted with the prior Office action, no copies thereof are provided with this Office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hemang Sanghavi whose telephone number is 703-305-3484. The examiner can normally be reached on Monday-Thursday (8:30 AM-6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 703-308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Hemang Sanghavi  
Primary Examiner  
Art Unit 2874

hs  
August 11, 2003